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EXAMINER

CHEN, TE Y

ART UNIT PAPER NUMBER

2161

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,188

Applicant(s)

VON GLAN, RUDOLF E.

Examiner

Susan Y. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/26/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

This office action is in response to the Election/Restrictions filed on July 6, 2006.

Claims 1-29 are pending for examination.

Applicant's election with traverse of Group I (Claims 1-29) in the reply filed on July 6, 2006 is acknowledged. The traversal is on the ground(s) that the search of the entire application could be made without serious burden. This is not found persuasive, because the inventions described in Group I, and II are distinct, and utility of group I clearly not necessary be imposed on group II, because the two groups is definite not the same (i.e., Group I is concurrent database query processing while Group II is with computer operation partitioning). Therefore, a serious burden would be placed on the examiner to search four distinct and separate inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11-14 are rejected under 35 U.S.C. 101 because the claimed subject matters direct to non-statutory subject matter.

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In the present case, claims 11-14 absent an explicit and deliberate definition in the specification for the claimed means which direct to software per se and is non-statutory for at least this reason.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-19, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 15, applicant fails to define the metes and bounds of the claimed subject matter "machine-readable medium", thus, it renders the claim indefinite.

As to claims 16-19, these claims have the same defect as their base claim, hence, are rejected for the same reason.

Because the ambiguous nature of instant invention, the following art rejection is to the best that the examiner is able to ascertain.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,289,334 issued to Reiner et al. (hereinafter referred as Reiner).

Claim 1:

Reiner discloses a method of parallelizing a database query, comprising:

dividing a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts]; and

submitting the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Claim 2:

Except the limitations recited in claim 1, Reiner further discloses that the discrete non-overlapping range constraints collectively span the entire range of values in the partitioning field [e.g. col. 10, lines 37-52, Fig. 5 and associated texts].

Claim 3:

Except the limitations recited in claim 1, Reiner further discloses that said partitioning field is populated by random numbers [e.g., the random hash key sequence loading technique at col. 28, line 67 – col. 29, line 6].

Claim 4:

Except the limitations recited in claim 3, Reiner further discloses that said random numbers are distributed substantially uniformly [e.g., col. 4, lines 30-42].

Claim 5:

Except the limitations recited in claim 4, Reiner further discloses that the range constraint comprises a range of values of the random numbers in the partitioning field [e.g., col. 29, lines 31-43].

Claim 6:

Except the limitations recited in claim 5, Reiner further discloses that the range constraint for each individual parallel subquery is based on the number of parallel

subqueries and an index number of the individual parallel subquery [e.g., col. 26, lines 18-66, col. 29, lines 45 – col. 30, line 7].

Claim 7:

Except the limitations recited in claim 1, Reiner further discloses that the database query comprises an SQL statement [e.g., col. 29, lines 31-43].

Claim 8:

Except the limitations recited in claim 1, Reiner further discloses the following:
extending each record of the database table to include the partitioning field [e.g., col. 4, lines 30-42]; and
populating the partitioning field of each record with a random number produced by a random number generator having a substantially uniform distribution [e.g., col. 28, line 67 – col. 29, line 6].

Claim 9:

Except the limitations recited in claim 1, Reiner further discloses that receiving individual results of each parallel subquery [e.g., col. 24, lines 15-35]; and
separately supplying each of the individual results to subsequent parallel operations [e.g., col. 24, lines 36-67; Fig.(s) 17-20].

Claim 10:

Except the limitations recited in claim 1, Reiner further discloses that the number of parallel subqueries is determined by a method comprising:

setting the number of parallel subqueries based on the received query and a preferred number of database records to be processed by each parallel subquery [e.g., col. 20, lines 32-65, Fig. 8 and associated texts; the parallel interface & query decomposer technique at col. 145, lines 2-20];

issuing a trial database query having a trial range constraint based on the set number of parallel subqueries, said trial database query returning a trial count of matching database records [e.g., Q 8-Q12 processing at col. 16, line 40 – col. 17, line 32 & col. 43, lines 27-50, Fig. 19 and associated texts]; and

adjusting the number of parallel subqueries until the trial count falls within a predetermined tolerance factor [e.g., col. 43, line 54 – col. 44, line 52, Fig. 20 and associated texts].

Claim 11:

Reiner discloses the following:

means to divide a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts]; and

means to submit the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Claim 12:

This claim incorporates substantially similar subject matter as claim 8, in form of computer means, hence is rejected along the same rational.

Claim 13:

This claim incorporates substantially similar subject matter as claim 10, in form of computer means, hence is rejected along the same rational.

Claim 14:

This claim incorporates substantially similar subject matter as claim 9, in form of computer means, hence is rejected along the same rational.

Claim 15:

Reiner discloses a machine-readable medium having stored thereon a plurality of instructions for parallelizing a database query, the plurality of instructions comprising instructions to:

divide a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a

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partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts]; and

submit the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Claim 16:

This claim incorporates substantially similar subject matter as claim 8, in form of machine readable medium, hence is rejected along the same rational.

Claim 17:

This claim incorporates substantially similar subject matter as claim 6, in form of machine readable medium, hence is rejected along the same rational.

Claim 18:

This claim incorporates substantially similar subject matter as claim 10, in form of machine readable medium, hence is rejected along the same rational.

Claim 19:

This claim incorporates substantially similar subject matter as claim 9, in form of machine readable medium, hence is rejected along the same rational.

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Claim 20:

Reiner discloses a computer system, including:

a processor coupled to a network [e.g., the units: 40A-C, 42A-C, 46, etc, Fig. 2 and associated texts];

an electronic file storage device coupled to the processor [e.g., the units: 54A-C, Fig. 2]; and

a memory coupled to the processor, the memory containing a plurality of executable instructions to implement a method of parallelizing a database query [e.g., the units: 40A-C, 42A-C, Fig. 2 and associated texts] , the method comprising:

dividing a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts] ; and

submitting the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Claim 21:

This claim incorporates substantially similar subject matter as claim 2, in form of computer system, hence is rejected along the same rational.

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Claim 22:

This claim incorporates substantially similar subject matter as claim 3, in form of computer system, hence is rejected along the same rational.

Claim 23:

This claim incorporates substantially similar subject matter as claim 4, in form of computer system, hence is rejected along the same rational.

Claim 24:

This claim incorporates substantially similar subject matter as claim 5, in form of computer system, hence is rejected along the same rational.

Claim 25:

This claim incorporates substantially similar subject matter as claim 6, in form of computer system, hence is rejected along the same rational.

Claim 26:

This claim incorporates substantially similar subject matter as claim 7, in form of computer system, hence is rejected along the same rational.

Claim 27:

This claim incorporates substantially similar subject matter as claim 8, in form of computer system, hence is rejected along the same rational.

Claim 28:

This claim incorporates substantially similar subject matter as claim 9, in form of computer system, hence is rejected along the same rational.

Claim 29:

This claim incorporates substantially similar subject matter as claim 10, in form of computer system, hence is rejected along the same rational.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1) Osborn et al. (U.S. Patent No. 6,327,591) which discloses an adaptive distributed network includes a plurality of information centers with information applications to retrieve, update and monitor the distribution of information units across the network.

2) Sarkar (U.S. Patent No. 6,012,067) which discloses a system for storing and manipulating objects in a plurality of relational data managers on the web.

3) Wu et al. (U.S. Patent No. 6,823,377) which discloses a system has arrangements and methods for collaborative web caching among geographically distributed cache servers.

4) Agrawal et al. (U.S. Patent Publication No. 2004/0260684) which integrates horizontal partitioning into physical database design.

5) Von Glan (U.S. Patent Publication No. 2005/0131893) which discloses a database early parallelism method and system.

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Y. Chen whose telephone number is 571-272-4016. The examiner can normally be reached on Monday - Friday from 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Susan Y Chen
Examiner
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September 8, 2006

A handwritten signature in cursive script that reads "Susan Chen".